Encouraging Environmental Sustainability in the Workplace

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We would like a web-based system created (connected to a database that would also need to be implemented). This system should be developed using mainstream development tools so that we could easily maintain and update it in the future.

This system will keep track of employees’ energy use in the office and will motivate them to conserve energy.

As a base system, we would like the system to:

- Store the user’s name, nickname, department, job title, and ID (including the straightforward creation of new users and management of users’ data by administrators).
- Daily: provide an area for the user to enter his start time and date and energy reading (the user will take the energy reading from a wattmeter which is outside the scope of this web-based system).
- Daily: provide an area for the user to enter his end time and date and energy reading.
- Allow system administrators to assign a user to one of three statuses (baseline, intervention, post-intervention) and update/change these statuses for a particular user as needed. Additionally, the system should allow the tracking and storage of these statuses.
- Automatically determine the baseline energy usage of a user (by a formula/process provided by the researchers).
- Display to users a daily tip for energy conservation behaviours (depending on their status; that is, this should be done when the user has the ‘intervention’ status).
- Display a graph of usage to users during the intervention and post-intervention periods (compared to baseline).
- Provide administrators with readily accessible data and reports for research purposes. That is, provide automatic storage of users’ information that is ready for analysis purposes (e.g., daily energy consumption for each user).

If possible, we would also like these additional group features implemented now:

- An area for users to submit their own tips for energy saving and search through others’ tips (with only nicknames being displayed).
- The possibility for users to see not only their own progress but also their progress against users of a similar profile (e.g., by job title or department).
• The possibility for administrators to create groups of users in order to encourage, for example, competition between areas (e.g., with users being able to see their group graphs of energy usage contrasted to other groups, again compared to baseline) with the provision for rewards to groups (e.g., to the most-improved area).

We would like this system to be extendable so that we could build on it in the future. For instance, in the future, we would like users to be able to:

• Set goals about their energy saving behaviors. (This, for example, would allow users to set concrete goals for their energy saving based on their baselines.)
• Follow up users’ energy saving goals, including reminding them of their goals. (That is, this information could be used to show feedback on daily energy consumption (in the form of a graph or a dashboard) against the goals that had been set by each user.)
• When a user is setting goals, the system could also allow the users to enter plans for how they are going to achieve those goals. (The idea with the plan is to allow the user to think specifically about concrete ways to achieve the goals. Again, users could be reminded at a later date about these plans.)
• The possibility of having the system connect to social media (such as Facebook and Twitter) in order for users to share their energy consumption tips, progress, and behaviors with others.